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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/666,998	09/19/2003	Andrei Laikhter	013670-9004 US00	1003
52229	7590	07/16/2008	EXAMINER	
MICHAEL BEST & FRIEDRICH LLP			STAPLES, MARK	
ONE SOUTH PINCKNEY STREET			ART UNIT	PAPER NUMBER
P.O. BOX 1806				1637
MADISON, WI 53701			MAIL DATE	DELIVERY MODE
			07/16/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/666,998	<b>Applicant(s)</b> LAIKHTER ET AL.
	<b>Examiner</b> Mark Staples	<b>Art Unit</b> 1637

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 08 April 2008.
- 2a) This action is FINAL.      2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 37-50 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 37-50 is/are rejected.
- 7) Claim(s) 50 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 08 April 2008 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    - a) All    b) Some \* c) None of:
      1. Certified copies of the priority documents have been received.
      2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
      3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/1648)  
 Paper No(s)/Mail Date \_\_\_\_\_
- 4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date \_\_\_\_\_
- 5) Notice of Informal Patent Application
- 6) Other: \_\_\_\_\_

**DETAILED ACTION**

1. Applicant's amendment of claims 37 and 50 in the paper filed on 04/08/2008 is acknowledged.

Claims 37-50 are pending and at issue.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

**Objections and Rejections that are Withdrawn**

***Specification***

2. The objection to improper use of the trademarks is withdrawn in light of Applicant's amendment of the specification to properly indicate trademarks.

***Drawings***

3. The replacement drawing of Figure 2 is accepted.

***Claim Rejections Withdrawn - 35 USC § 112***

4. The rejections of claim 50 are withdrawn under 35 U.S.C. 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant's amendments to claim 50 and citation of support in the specification for the terminology in claim 50 have overcome the rejections.

**Rejections that are Maintained**

***Title***

5. The objection to the title is maintained. It is acknowledged that Applicant has amended the title to reflect that the claims recite methods of detecting fluorescence. However, the critically recited element of anthraquinone quencher dyes has been deleted. The following new title is suggested:

**METHODS OF DETECTING FLUORESCENCE WITH ANTHRAQUINONE  
QUENCHER DYES**

Applicant may accept the above title if it is accurate and should indicate acceptance in reply to this Office action. If the above title is not acceptable to Applicant, Applicant is required to submit a new, accurate, and brief title incorporating the critical elements of: 1) methods of detecting fluorescence and 2) anthraquinone quencher dyes.

***Claim Interpretation***

6. As the specification does not provide a definition of phosphodiester backbone, this term has been interpreted according to the accepted meaning of the art as being a biological structure inherently found in deoxyribonucleic acid (DNA). That this meaning is accepted in the art is evidenced by Encyclopædia Britannica (2008).

"nucleic acid." Encyclopædia Britannica. 2008. Encycloædia Britannica Online.  
11 July 2008  
<<http://www.search.eb.com/eb/article-256731>>.

***Claim Rejections Maintained - 35 USC § 102***

7. The rejection of claims 37-47 and 49 under 35 U.S.C. 102(b) as being anticipated by Batz et al. (2000) is maintained. Applicant's arguments filed 04/08/2008 have been fully considered but they are not persuasive.

Applicant argues that Batz et al. do not teach that a quencher is attached to a nucleic acid having a phosphodiester backbone. However Batz et al. teach a nucleic acid of a DNA polymer ending in a PNA and where the quencher Q<sub>1</sub> which is an anthraquinone moiety is attached to the DNA polymer in SEQ ID NO: 3 (see Example 11). By teaching the quencher attached to DNA, Batz et al. inherently teach a nucleic acid polymer having a phosphodiester backbone.

Thus Batz et al. anticipate the claimed invention and the rejection is maintained.

***Claim Rejections Maintained - 35 USC § 103***

8. The rejection of claim 48 is rejected under 35 U.S.C. 103(a) as being unpatentable over Batz et al. and further in view of Jenne et al. (2002) is maintained. Applicant's arguments filed 04/08/2008 have been fully considered but they are not persuasive.

Applicant argues that as the rejection of claim 37 as being anticipated by Batz et al. should be withdrawn that the rejection of claim 48 should be withdrawn. However, as noted above the rejection of claim 37 is maintained and therefore the rejection of claim 48 is also maintained.

**New Rejections Necessitated by Amendment**

***New Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claim 50 is rejected under 35 U.S.C. 102(b) as being anticipated by Batz et al. (2000).

Batz et al. teach as given above and as given in the prior Office Action mailed on 01/08/2008.

Batz et al. teach compounds of amended instant claim 50 as follows.

Batz et al. teach at least two compounds according to formula VIa (see claim 7) where:

$n = m = 0$ ;

$(R)_1$  = hydrogen;

$(R)_k$  =  $NHR'$ ;

$R' = OR'$ ; and

$R' = PO_3^{2-}$  (1<sup>st</sup> compound) or  $= PO_2^-$  (second compound).

Batz et al. teach additional compounds according to formula VIa (see claim 7)

where:

$n = m = 0$ ;

(R)<sub>1</sub> = hydrogen;

(R)<sub>k</sub> = N(R''R');

R' = OR';

R' = PO<sub>3</sub><sup>2-</sup> or = PO<sub>2</sub><sup>-</sup>; and

R'' is any of the groups other than acetyl that can covalently bind to nitrogen (as listed in claim 7).

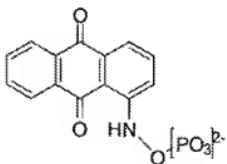
The first and second compounds are compounds of instant claim 1 where:

R<sub>1</sub> = R<sub>14</sub> = R<sub>15</sub> = R<sub>6</sub> = R<sub>7</sub> = R<sub>8</sub> = R<sub>9</sub> = R<sub>10</sub> = hydrogen;

R<sub>1</sub> = R<sub>14</sub> = R<sub>15</sub> = hydrogen; and

X = PO<sub>3</sub><sup>2-</sup> (first compound) or = PO<sub>2</sub><sup>-</sup> (second compound).

The structure of the first compound is given below.



The additional compounds taught by Batz et al. are compounds of the instant claim 50 where:

R<sub>1</sub> = R<sub>14</sub> = R<sub>15</sub> = R<sub>7</sub> = R<sub>8</sub> = R<sub>9</sub> = R<sub>10</sub> = hydrogen;

R<sub>1</sub> = R<sub>14</sub> = R<sub>15</sub> = hydrogen;

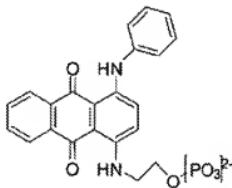
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X =  $\text{PO}_3^{2-}$  or =  $\text{PO}_2^-$ ; and

$R_6$  = is any of the groups other than acetyl that can covalently bind to nitrogen  
(as recited instant claim 50).

***Allowable Subject Matter***

10. The elected specie of claim 50 would be allowable if rewritten to include all of the limitations of the base claim and any intervening claims. The elected species is given below.



11. The following is a statement of reasons for the indication of allowable subject matter: no prior art was found which teaches or fairly suggests the elected species of the compound shown above. A structure search for the compound was conducted and no prior was found which taught or fairly suggested this compound.

**Conclusion**

12. No claim is allowed.

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Staples whose telephone number is (571) 272-9053. The examiner can normally be reached on Monday through Thursday, 9:00 a.m. to 6:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Benzion can be reached on (571) 272-0782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Mark Staples  
/M. S./  
Examiner, Art Unit 1637  
July 11, 2008

/Teresa E Strzelecka/  
Primary Examiner, Art Unit 1637  
July 13, 2008